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A.D. 1870, 21<sup>st</sup> SEPTEMBER.

N<sup>o</sup> 2534.

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S P E C I F I C A T I O N

OF

FERRAR FENTON & SAMUEL HOLLINS.

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TREATING SEWAGE, &c.

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LONDON:

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1871.







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A.D. 1870, 21st SEPTEMBER. N° 2534.

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**Treating Sewage, &c.**

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**LETTERS PATENT** to Ferrar Fenton, of Dewsbury, in the County of York, and Samuel Hollins, of Bolton, in the County of Lancaster, for the Invention of “**IMPROVEMENTS IN THE DEODORIZATION AND UTILIZATION OF SEWAGE OR OTHER FECULENT OR PUTRESCENT MATTER, WHETHER IN A SOLID, FLUID, OR SEMI-FLUID STATE.**”

Sealed the 22nd November 1870, and dated the 21st September 1870.

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**PROVISIONAL SPECIFICATION** left by the said Ferrar Fenton and Samuel Hollins at the Office of the Commissioners of Patents, with their Petition, on the 21st September 1870.

We, **FERRAR FENTON**, of Dewsbury, in the County of York, and  
5 **SAMUEL HOLLINS** of Bolton, in the County of Lancaster, do hereby declare the nature of the said Invention for “**IMPROVEMENTS IN THE DEODORIZATION AND UTILIZATION OF SEWAGE OR OTHER FECULENT OR PUTRESCENT MATTER, WHETHER IN A SOLID, FLUID, OR SEMI-FLUID STATE,**” to be as follows:—

This Invention consists principally in the employment for the purpose  
10 of deodorization of either of the following compounds, vizt. :—A combination of gypsum, sulphate of lime, bi-sulphate of iron, soot, salt, and cinder breeze or ashes, or a combination of the “bind,” clay shale, alum



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shale, or barren shale of the coal measures, or alum clay, or alum shale, either in a raw state or roasted with any or all of the above. These ingredients may be mixed together in equal proportions to form the deodorizing composition which may be used either above or below or mixed with the feculent or putrescent matter when in a solid or 5 semi-fluid state, or it may be used to form a filter bed for sewage or other feculent or putrescent matter in a fluid state, or the ingredients may be mixed together in such other proportions as the sewage or other feculent matter may require according to local circumstances and to the variations in the composition of the said matter. Under most 10 circumstances the whole of these constituents need not be used at once, but any of them may be omitted as may be required by the state or condition of the sewage or other matter under operation. The resulting substance forms a valuable manure either for direct application to the land by itself or it may be used as a substitute for coprolite as a base 15 for the manufacture of artificial manure.

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**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said Ferrar Fenton and Samuel Hollins in the Great Seal Patent Office on the 20th March 1871.

**TO ALL TO WHOM THESE PRESENTS SHALL COME**, we, **FERRAR 20 FENTON**, of Dewsbury, in the County of York, and Samuel Hollins, of Bolton, in the County of Lancaster, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-first day of September, in the year of our Lord One thousand eight hundred and seventy, in the thirty-fourth 25 year of Her reign did, for Herself, Her heirs and successors, give and grant unto us, the said Ferrar Fenton and Samuel Hollins, Her special license that we, the said Ferrar Fenton and Samuel Hollins, our executors, administrators, and assigns, or such others as we, the said Ferrar Fenton and Samuel Hollins, our executors, administrators, and 30 assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “**IMPROVEMENTS IN THE DEODORIZATION AND 35 UTILIZATION OF SEWAGE OR OTHER FECULENT OR PUTRESCENT MATTER, WHETHER IN**



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A SOLID, FLUID, OR SEMI-FLUID STATE," upon the condition (amongst others) that we, the said Ferrar Fenton and Samuel Hollins, our executors or administrators, by an instrument in writing under our, or one of our or their, or one of their hands and seals, should particularly describe and  
5 ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Samuel Hollins, on behalf of  
10 myself and the said Ferrar Fenton, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement (that is to say):—

This Invention consists principally in the employment for the purpose  
15 of deodorization of either of the following compounds, vizt.:—A combination of gypsum, sulphate of lime, bi-sulphate of iron, soot, chalk, salt, and cinder breeze or ashes, or a combination of the "bind," clay shale, alum shale, or barren shale of the coal measures, or alum clay, or alum shale, either in a raw state or roasted with any or all of the above.  
20 These ingredients may be mixed together in equal proportions to form the deodorizing composition which may be used either above or below or mixed with the feculent or putrescent matter when in a solid or semi-fluid or liquid state, or it may be used to form a filter bed for sewage or other feculent or putrescent matter in a fluid state. Or after  
25 liquid sewage or factory water has been operated upon by intermixture of the precipitating deodorizer it may be filtered through the filter bed above described to render it still further chemically pure. For the purification of acid "magma, or "seak," or "suds water," or any acid sewage water from manufacturing operations, we use any of the above  
30 ingredients or compositions, or salt and lime, or salt, lime, gypsum, and chalk, or plaster of Paris, or calcined gypsum hydrated together or separately, and afterwards incorporated or mixed in such proportions as the different compositions of such acid "magma," seak, or suds water, or acid sewage from manufacturing operations may require, and the  
35 above ingredients may be used either as precipitating or filtering agents for the purpose alone or in combination with other substances or with the filter bed herein-before described. Or the ingredients may be mixed together in such other proportions as the sewage or other feculent matter



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may require according to local circumstances and to the variations in the composition of the said matter, it being necessary so to alter the composition according to the various conditions and constituents of the sewage or other matter whether solid, liquid, or semi-fluid, or the different factory wastes or waters that are operated on or flow into the public sewers. Under most circumstances the whole of these constituents need not be used at once, but any of them may be omitted as may be required by the state or condition of the sewage or other matter under operation. The resulting substance forms a valuable manure either for direct application to the land by itself, or it may be used as a substitute for coprolite as a base for the manufacture of artificial manure. 5 10

Having now described the nature and object of our said Invention for "Improvements in the Deodorization and Utilization of Sewage or other Feculent or Putrescent Matter, whether in a Solid, Fluid, or Semi-fluid State," together with the manner in which the same is to be or may be performed or carried into practical effect, we wish it to be understood that we claim, as our Invention,— 15

The use of the filter bed and precipitating compositions above described, and especially the use and application of the above compositions for purifying acid sewage from manufacturing operations,— 20

And, secondly, we claim the use of the above compositions by precipitation and filtering, either separately or combined.

In witness whereof, I, the said Samuel Hollins, on behalf of myself and the said Ferrar Fenton, have hereunto set my hand and seal, this Seventeenth day of March, in the year of our Lord One thousand eight hundred and seventy-one. 25

SAM<sup>L</sup>. HOLLINS. (L.S.)

Witness,

GEORGE DAVIES, C. E.

Office for Patents,

Manchester.

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